



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/064,172	06/18/2002	Thomas L. Toth	GEMS8081.128	8363
27061	7590	06/16/2004	EXAMINER	
ZIOLKOWSKI PATENT SOLUTIONS GROUP, LLC (GEMS)			SONG, HOON K	
14135 NORTH CEDARBURG ROAD			ART UNIT	
MEQUON, WI 53097			PAPER NUMBER	
			2882	

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/064,172	TOTH ET AL.	
	Examiner	Art Unit	
	Hoon Song	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 and 21-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-11 and 21-24 is/are allowed.
- 6) ☒ Claim(s) 1-5, 12-17 and 25-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Edholm et al. (US 3717768).

Regarding claim 1, Edholm teaches a pre-subject filter for a radiographic imaging system (figure 2), the filter comprising;

a first end having a first attenuation profile (lower portion of the absorption body);

a second end having a second attenuation profile (upper portion of the absorption body), the second attenuation profile being larger than the first attenuation profile (figure 5a and 5b); and

a body (7) connecting the first end and the second end, the body having variable attenuation characteristics in at least two orthogonal cross-sections (the absorption body 7 has elliptically dished shape, column 6, line 67).

Regarding claim 2, Edholm teaches that the first end further includes a filtering width narrower than a filtering width of the second end (smaller diameter at lower portion of the absorption body).

Regarding claim 3, Edholm teaches that the body has an attenuation profile such that the attenuation power decreases continuously from the first end to the second end (figure 5b, column 4 line 14+).

Regarding claim 4, Edholm teaches a shaped cross-section (figure 5b).

Regarding claim 5, Edholm teaches that the filter is translated in at least one of a z-axis and a transverse axis of a CT system (column 4 line 62+).

Claims 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Edholm et al. (US 3755672).

Regarding claim 25, Edholm teaches a cam filter assembly for use with a radiation emitting imaging system, the cam filter assembly including a pair of non-overlapping cam filters (11a and 11b) wherein each cam filter has an attenuation power that varies with thickness of the filter (column 6 line 57-64), the pair of cam filters being configured to operate in tandem to manipulate a beam of radiation projected toward a subject (3) to generate a desired radiation profile across a region-of-interest of the subject (figure 2).

Regarding claim 26, Edholm teaches each filter has a width situated along an x-axis and a length situated along z-axis being parallel to a long axis of the subject, and wherein each filter has varying attenuation characteristics along its length (figure 2, column 6 line 57-64).

Regarding claim 27, Edholm teaches each filter has a generally rod-shaped body (figure 2, rod connecting the filter and servomotor).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edholm et al. (US 3717768).

Regarding claim 12, Edholm teaches a method of diagnostic imaging comprising the steps of:

- positioning a subject (3) to be scanned into a scanning bay;
- projecting a radiation beam (1) along a beam path toward the subject (3);
- positioning a filter (7) in the beam path, the filter having variable attenuation parallel to a subject's long axis (figure 4, elliptically dished shape filter);
- translating the filter parallel to the subject's long axis to reduce radiation exposure to sensitive anatomical regions of the subject (column 4 line 46-55)
- acquiring imaging data of the subject.

However Edholm fails to teach that the system is reconstructing an image of the subject from the imaging data.

Image reconstruction Digital radiography is well known to substitute X-ray films.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the radiographic imaging system of Edholm to adapt the known

image reconstruction digital radiography since the digital imaging would provide digitalized image data for easier image modification.

Regarding claim 13, Edholm teaches that the filter (D, figure 2) includes:
a first end having a first attenuation profile (lower portion);
a second end having a second attenuation profile, the second attenuation profile being greater than the first attenuation profile (upper portion); and
a body (7) connecting the first end and the second end.

Regarding claim 14, Edholm teaches that the first end has a filtering width narrower than a filtering width of the second end (elliptically dished shape).

Regarding claim 15, Edholm teaches that the body has a variable attenuation profile that varies continuously along a length of the body from the first end to the second end (figure 4).

Regarding claim 16, Edholm teaches that the body has a width that tapers from the second end to the first end (figure 4, elliptically dished shape).

Regarding claim 17, Edholm teaches that the attenuation profile of the body varies non-linearly across any given constant width of the body (figure 4, elliptically dished shape).

Allowable Subject Matter

Claims 6-11 and 21-24 are allowed over prior art.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 6, the prior art fails to teach a computer programmed to determining an attenuation pattern of the subject and translate the filter along the first axis as a function of the attenuation pattern of the subject as claimed in independent claim 6.

Regarding claim 21, Moore fails to teach that the computer is further programmed to translate at least one of the filters in the first direction to either increase or decrease x-ray exposure to the region of interest as claimed in independent claim 21.

Response to Arguments

Applicant's arguments filed 02/18/2004 have been fully considered but they are not persuasive.

The applicant argues that Edholm et al. (US 3717768) fails to teach the filter has varying attenuation characteristic along its length.

However the examiner disagrees.

Because Edholm teaches that the absorption body of the filter is elliptically dished (column 6 line 67), the elliptically dished body will create variable attenuation characteristic along not only its width but also its length. Thus, the Edholm reference still read on the claim invention and the applicant's argument is not persuasive.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within

Art Unit: 2882

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is 703-308-2736. The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on 703-308-4858. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hoon Song

6/7/04
HCS


DAVID V. BRUCE
PRIMARY EXAMINER